



Franklin Electric

Equivalents of Dynamic (Absolute) Viscosity

	Pascal second Pa s	Centipoise cP	Poundal second per square foot pdl s/ft ²	Pound-force per second square foot bf s/ft ²	Kilogram-force per Second Square metre kgf s/m ²
1 pascal second = (= 1 N s/m ²) Pa s	1	1000	0.672	2.09 x 10 ⁻²	0.102
1 centipoise = cP	0.001	1	6.72 x 10 ⁻⁴	2.09 x 10 ⁻²	1.02 x 10 ⁻⁴
1 poundal second per Square foot = (= 1 lb/(ft s)) pdl s/ft ²	1.488	1488	1	0.031	0.152
1 pound-force second per square foot = (= 1 slug/(ft s)) lbf s/ft ²	47.88	47 880	32.174	1	4.882
1 kilogram-force second per square metre = kgf s/m ²	9.807	9807	6.590	0.205	1

To convert absolute or dynamic viscosity from one set of units to another, locate the given set of units in the left hand column and multiply the numerical value by the factor shown horizontally to the right under the set of units desired. Example. Convert an absolute viscosity of 0.0014 slugs/foot second to centipoise. The conversion factor is seen to be 47 880. Then 0.0014 times 47 880 = 67 centipoise.

Equivalents of Kinetic Viscosity

	Metre squared per second m ² /s	Centistokes cSt	Inch squared per second in ² /s	Foot squared per second ft ² /s
1 metre squared per second = m ² /s	1	1 x 10 ⁶	1550	10.764
1 centistokes = cSt	1 x 10 ⁻⁴	1	1.55 x 10 ⁻²	1.0764 x 10 ⁻⁴
1 inch squared per second = in ² /s	6.452 x 10 ⁻⁴	645.2	1	6.944 x 10 ⁻³
1 foot squared per second = ft ² /s	9.290 x 10 ⁻²	92 903	144	1

To convert kinetic viscosity from one set of units to another, locate the given set of units in the left hand column and multiply the numerical value by the factor shown horizontally to the right, under the set of units desired. Example. Convert a kinematic viscosity of 0.5 foot squared/second to centistokes. The conversion factor is seen to be 92 903. Then 0.5 x 92 903 = 46 451 centistokes.



TEMPERATURE CONVERSION

- 360 ° C to 0 ° C			1 ° C to 40 ° C			41 ° C to 80 ° C			81 ° C to 290 ° C			300 ° C to 690 ° C		
C	Cent Or Fah.	F	C	Cent Or Fah.	F	C	Cent Or Fah.	F	C	Cent Or Fah.	F	C	Cent Or Fah.	F
-218	-360		-17.2	1	33.8	5.0	41	105.8	27.2	81	177.8	149	300	572
-212	-350		-16.7	2	35.6	5.6	42	107.6	27.8	82	179.6	154	310	590
-207	-340		-16.1	3	37.4	6.1	43	109.4	28.3	83	181.4	160	320	608
-201	-330		-15.6	4	39.2	6.7	44	111.2	28.9	84	183.2	166	330	626
-196	-320		-15.0	5	41.0	7.2	45	113.0	29.4	85	185.0	171	340	644
-190	-310		-14.4	6	42.8	46	114.8	71	30.0	86	186.8	177	350	662
-184	-300		-13.9	7	44.6	47	116.6	77	30.6	87	188.6	182	360	680
-179	-290		-13.3	8	46.4	48	118.4	82	31.1	88	190.4	188	370	698
-173	-280		-12.8	9	48.2	49	120.2	88	31.7	89	192.2	193	380	716
-169	-273	459.4	-12.2	10	40.0	50	122.0	93	32.2	90	194.0	199	390	734
-168	-270	-454	-11.7	11	51.8	51	123.8	99	32.8	91	195.8	204	400	752
-162	-260	-436	-11.1	12	53.6	52	125.6	100	33.3	92	197.6	210	410	770
-157	-250	-418	-10.6	13	55.4	53	127.4	104	33.9	93	199.4	215	420	788
-151	-240	-400	-10.0	14	57.2	54	129.2	110	34.4	94	201.2	221	430	806
-146	-230	-382	-9.4	15	59.0	55	131.0	116	35.0		203.0	227	440	824
-140	-220	-364	-8.9	16	60.8	56	132.8	121	35.6	96	204.8	232	450	842
-134	-210	-346	-8.3	17	62.6	57	134.6	127	36.1	97	206.6	238	460	860
-129	-200	-328	-7.8	18	64.4	58	136.4	132	36.7	98	208.4	243	470	878
-123	-190	-310	-7.2	19	66.2	59	138.2	138	37.2	99	210.2	249	480	896
-118	-180	-292	-6.7	20	68.0	60	140.0	143	37.8	100	212.0	254	490	914
-112	-170	-274	-6.1	21	69.8	16.1	61	141.8	43	110	230	260	500	932
-107	-160	-256	-5.6	22	71.6	16.7	62	143.6	49	120	248	266	510	950
-101	-150	-238	-5.0	23	73.4	17.2	63	145.4	54	130	266	271	520	968
-96	-140	-220	-4.4	24	75.2	17.8	64	147.2	60	140	284	277	530	986
-90	-130	-202	-3.9	25	77.0	18.3	65	149.0	66	150	302	282	540	1004
-84	-120	-184	-3.3	26	78.8	18.9	66	150.8	71	160	320	288	550	1022
-79	-110	-166	-2.8	27	80.6	19.4	67	152.6	77	170	338	293	560	1040
-73	-100	-148	-2.2	28	82.4	20.0	68	154.4	82	180	356	299	570	1058
-68	-90	-130	-1.7	29	84.2	20.6	69	156.2	88	190	374	304	580	1076
-62	-80	-112	-1.1	30	86.0	21.1	70	158.0	93	200	392	310	590	1094
-57	-70	-94	-0.6	31	87.8	21.7	71	159.8	99	210	410	316	600	1112
-51	-60	-76	0.0	32	89.6	22.2	72	161.6	100	212	413.6	321	610	1130
-46	-50	-58	0.6	33	91.4	22.8	73	163.4	104	220	428	3227	620	1148
-40	-40	-40	1.1	34	93.2	23.3	74	165.2	110	230	446	332	630	1166
-34	-30	-22	1.7	35	95.0	23.9	75	167.0	116	240	464	338	640	1184
-29	-20	-4	2.2	36	96.8	24.4	76	168.8	121	250	482	343	650	1202
-23	-10	14	2.8	37	98.6	25.0	77	170.6	127	260	500	349	660	1220
-17.8	0	32	3.3	38	100.4	25.6	78	172.4	132	270	518	354	670	1238
			3.9	39	102.2	26.1	79	174.2	138	280	536	360	680	1256
			4.4	40	104.0	26.7	80	176.0	143	290	554	366	690	1274

Locate temperature in middle column. If in degrees Centigrade, read Fahrenheit equivalent in right-hand column; if in degrees Fahrenheit, read Centigrade equivalent in left-hand column.

$$F^{\circ} = \frac{9}{5} (C^{\circ} + 32^{\circ}) \qquad C^{\circ} = \frac{5}{9} (F^{\circ} - 32^{\circ})$$



Franklin Electric

WATER VAPOUR PRESSURE

PRESSURE & TEMPERATURE OF SATURATED STEAM

Gauge Pressure	Absolute Pressure PSI	Saturated Temp Deg. F	Saturated Temp Deg. C
(-13.7)	1	101.76	38.72
(-12.7)	2	126.10	52.23
(-11.7)	3	141.40	60.72
(-10.7)	4	152.99	67.15
(-9.7)	5	162.25	72.29
(-8.7)	6	170.07	76.63
(-7.7)	7	176.85	80.39
(-6.7)	8	182.87	93.73
(-5.7)	9	188.28	76.74
(-4.7)	10	193.21	89.47
0.3	15	213.03	100.47
54.3	20	227.96	108.76
15.3	30	250.34	121.18
25.3	40	267.24	130.56
35.3	50	281.01	138.20
45.3	60	292.71	144.69
55.3	70	302.92	150.36
65.3	80	312.03	155.42
75.3	90	320.27	160.15
85.3	100	327.83	164.19
105.3	120	341.25	171.63
115.3	130	347.32	175.00
125.3	140	353.02	178.17
135.3	150	358.42	181.16
185.3	200	381.79	194.13
235.3	250	400.95	204.77
285.3	300	417.33	213.86
485.3	500	467.01	241.43
585.3	600	486.21	252.09
685.3	700	503.10	261.46
885.3	900	531.98	277.49
1185.3	1200	567.22	297.05
1985.3	2000	635.82	335.12
2985.3	3000	695.36	368.16
3211.3	3226	706.10	374.12



TABLES OF EQUIVALENTS

PRESSURE

Lbs Per Sq. Inch	Ft of Water	" of Mercury	Atmospheres	Millibars	m of Water	Kg per cm ²	mm of Mercury	KN per m ²
1	2.309	2.036	0.068	70.37	0.703	0.07	51.71	6.985
0.434	1	0.883	0.029	30.48	0.305	0.03	22.42	2.986
0.491	1.133	1	0.033	34.52	0.345	0.034	25.4	3.386
14.70	33.9	29.92	1	1033	10.33	1.033	760	101.4
0.014	0.033	0.029	0.001	1	0.01	0.001	0.735	0.098
1.422	3.281	2.895	0.097	100	1	0.100	73.55	9.808
14.22	32.81	28.96	0.968	1000	10	1	735.5	98.80
0.019	0.045	0.039	0.001	1.36	0.013	0.001	1	0.133
0.145	0.335	0.295	0.010	10.21	0.102	0.010	7.500	1

RATE OF FLOW

UK g.p.m.	UK g.p.h.	Cu.ft. Per hr.	Tons per hour	Litres p.m.	Litres p.h.	US galls p.m.	US galls p.h.	M ³ per hour
1	60	9.63	0.268	4.54	272.7	1.2	72	.273
0.016	1	0.16	0.004	0.076	4.54	0.02	1.2	0.005
0.104	6.23	1	0.027	0.472	28.32	0.125	7.48	0.028
3.73	224	36	1	16.99	1019.2	4.41	264.6	1.019
0.22	13.19	2.118	0.06	1	60	0.26	15.6	0.060
0.004	0.22	0.035	0.001	0.016	1	0.004	0.26	0.001
0.833	49.98	8.02	0.22	3.79	227.4	1	60	0.227
0.014	0.833	0.13	0.004	0.063	3.79	0.016	1	0.004
3.667	220.3	35.312	0.981	16.667	1000	4.398	263.9	1



SPECIFIC GRAVITY CONVERSION TABLES

Conversion Table Baumé – Specific Gravity

API Or Baumé	Specific Gravity	API Or Baumé	Specific Gravity	API Or Baumé	Specific Gravity	API Or Baumé	Specific Gravity	API Or Baumé	Specific Gravity
0	1.000	10	1.074	20	1.160	30	1.260	40	1.381
1	1.006	11	1.082	21	1.169	31	1.271	45	1.450
2	1.014	12	1.090	22	1.178	32	1.283	50	1.526
3	1.021	13	1.098	23	1.188	33	1.294	55	1.611
4	1.028	14	1.106	24	1.198	34	1.306	60	1.705
5	1.035	15	1.115	25	1.208	35	1.318	65	1.812
6	1.043	16	1.124	26	1.218	36	1.330	70	1.933
7	1.050	17	1.132	27	1.228	37	1.342		
8	1.058	18	1.141	28	1.239	38	1.355		
9	1.066	19	1.150	29	1.250	39	1.367		

Weight per gallon for liquids LIGHTER than water

API Or Baumé	Specific Gravity	API Or Baumé	Specific Gravity	API Or Baumé	Specific Gravity	API Or Baumé	Specific Gravity	API Or Baumé	Specific Gravity
10	1.000	31	0.871	52	0.7712	73	0.6926	91	.636
11	0.993	32	0.865	53	0.7670	74	0.6893	92	.633
12	0.986	33	0.860	54	0.76370.7	75	0.6859	93	.630
13	0.979	34	0.855	55	597	76	0.6826	94	.628
14	0.973	35	0.850	56	0.7556	77	0.6793	95	.625
15	0.966	36	0.845	57	0.7516	78	0.6750	96	.622
16	0.959	37	0.840	58	0.7476	79	0.6728	97	.619
17	0.953	38	0.835	59	0.7437	80	0.6696	98	.617
18	0.946	39	0.830	60	0.7398	81	0.6665	99	.614
19	0.940	40	0.825	61	0.7359	82	0.6634	100	.611
20	0.934	41	0.820	62	0.7310	83	0.6603		
21	0.928	42	0.816	63	0.7283	84	0.6572		
22	0.921	43	0.811	64	0.7246	85	0.6541		
23	0.916	44	0.806	65	0.7209	86	0.6511		
24	0.910	45	0.802	66	0.7122	87	0.6481		
25	0.904	46	0.797	67	0.7136	88	0.6452		
26	0.898	47	0.793	68	0.7090	89	0.6422		
27	0.893	48	0.788	69	0.7065	90	0.6393		
28	0.887	49	0.784	70	0.7020				
29	0.882	50	0.780	71	0.6995				
30	0.876	51	0.775	72	0.6950				

The specific gravity of a substance is its weight as compared with the weight of an equal bulk of pure water. For making specific gravity determinations the temperature of the water is usually taken at 62° when 1 cubic feet of water weighs 62.355 lbs. Water is at its greatest density at 39.2°F or 4° Centigrade.



SPECIFIC GRAVITY CONVERSION TABLES

Brix	Sp Gr.	Bé	Brix	Sp Gr.	Bé	Brix	Sp Gr.	Bé	Brix	Sp Gr.	Bé	Brix	Sp Gr.	Bé
0	1.00	0	24	1.101	13.35	48	1.220	26.30	64	1.314	34.64	79	1.410	42.10
2	1.01	1.13	26	1.110	14.45	50	1.230	27.38	66	1.326	35.66	80	1.420	42.60
4	1.02	2.24	28	1.120	15.54	51	1.238	27.91	68	1.340	36.67	82	1.430	43.50
6	1.02	3.37	30	1.130	16.63	52	1.244	28.43	70	1.351	37.66	84	1.440	44.50
8	1.03	4.49	32	1.140	17.73	53	1.249	28.96	71	1.357	38.17	86	1.460	45.44
10	1.04	5.60	34	1.150	18.81	54	1.255	29.48	72	1.364	38.66	88	1.470	46.40
12	1.046	6.71	36	1.160	19.90	55	1.261	30.00	73	1.370	39.16	90	1.480	47.30
14	1.057	7.81	38	1.170	20.98	56	1.267	30.53	74	1.376	39.65	92	1.500	48.20
16	1.066	8.94	40	1.180	22.10	57	1.272	31.05	75	1.383	40.15	94	1.510	49.10
18	1.074	10.04	42	1.190	23.13	58	1.278	31.56	76	1.389	40.64	96	1.530	50
20	1.083	11.15	44	1.200	24.20	60	1.290	32.60	77	1.396	41.12	98	1.540	51
22	1.092	12.30	46	1.210	25.26	62	1.302	33.60	78	1.403	41.61	100	1.560	52



INTERNATIONAL SYSTEMS OF UNITS (SI)

The name *Système International d'Unités* (International System of Units), with abbreviation SI, was adopted by the 11th General Conference of Weights and Measures in 1960.

This system includes three classes of units:

- (1) base units
- (2) supplementary units
- (3) derived units

Together these form the coherent system of SI units.

BASE UNITS	Quantity	Name	Symbol
	length	metre	M
	mass	kilogram	Kg
	time	second	s
	electric current	ampere	A
	thermodynamic temperature	kelvin	K
	luminous intensity	candela	cd
	amount of substance	mole	mol

SUPPLEMENTARY UNITS	Quantity	Name	Symbol
	Plain Angle	radian	rad
	Solid Angle	steradian	sr

DERIVED UNITS	Quantity	Name	Symbol	Equivalents	
	Frequency	Hertz	Hz	1 Hz = 1 cycle/s	
	force	newton	N	1 N = 1 kg/m/s ²	
	pressure and stress	pascal	Pa	1 Pa = 1 N/m ²	
	work, energy,	joule	J	1 J = 1 Nm	
	power	watt	W	1W = 1 J/s	
	quantity of electricity	coulomb	C	1 C = 1 A s	
	electric potential, potential difference, tension,	volt	V	1V = 1 W/A	
	electromotive force	farad	F	1F = 1 A s/v	
	electric capacitance	ohm	Ω	1 Ω = 1 V/A	
	electric resistance	siemens	S	1S = 1Ω ⁻¹	
	electric conductance	flux of magnetic induction, magnetic flux	weber	Wb	1 Wb = 1 Vs
	magnetic flux density	tesla	T	1T = 1 Wb/m ²	
	magnetic induction	henry	H	1H = 1 V s/A	
	inductance	lumen	Lm	1 lm = 1 cd sr	
	luminous flux	lux	lx	1 lx = 1m/m ²	
	illumination				



INTERNATIONAL SYSTEMS OF UNITS (SI)

Certain units which are outside the SI system but have international recognition and use, will continue to be used. The most important of these are

EXCEPTIONS

TIME: In addition to the second (s) the following units will also continue in use

Name	Symbol
minute	min
hour	h
day	d

Other units such as week, month and year will also continue in use.

PLANE ANGLE:

In addition to the radian (rad) the following units will continue to be used:

Name	Symbol
degree	°
minute	'
second	"

TEMPERATURE

In addition to the kelvin (K), which relates to the absolute or thermodynamic scale, customary temperatures will be measured in degrees Celsius (°C). formerly called centigrade. The degree intervals on the Kelvin and Celsius scales are identical, but whereas 0 Kelvin is absolute zero, 0 degrees Celsius is the temperature of melting ice.

Factor

10^{12}	tera	T
10^9	giga	G
10^6	mega	M
10^3	kilo	k
10^2	hecto	h
10	deca	da
10^{-1}	deci	d
10^{-2}	centi	c
10^{-3}	milli	m
10^{-6}	mico	μ
10^{-9}	nano	n
10^{-12}	pico	p
10^{-15}	femto	f
10^{-16}	atto	a

**DECIMAL MULTIPLES AND
SUB MULTIPLES OF SI UNITS
PREFIXES:**

When a prefix is added to a unit it is considered to be combined with that unit, forming a new unit symbol which can be raised to a positive or negative power and which can be combined with either unit symbols to form compound units.

When a combined prefix and symbol is raised to a positive (or negative) power, they must be considered as one whole individual unit and not separate entities.



Franklin Electric

Primary units are spaced apart,
 e.g. Nm (Newton metre)
 kW h (kilowatt hour)

WRITTEN USE OF SYMBOLS AND PREFIXES

Prefixes are placed immediately adjacent to the unit
 e.g. MN (meganewton)
 kJ (kilojoule)

Conversion Equivalents

The conversion equivalents given on this page, are based generally on British Standard 350 : Part 1 : 1974. In some cases the degree of rounding has been adjusted to an extent considered to be of value to a practical engineer.

millimetre mm	centimetre cm	meter m	inch in	foot ft	yard yd
1	0.1	0.001	0.0394	0.0033	0.0011
10	1	0.01	0.3937	0.0328	0.0109
1000	100	1	39.3701	3.2808	1.0936
25.4	2.54	0.0254	1	0.0833	0.0278
304.8	30.48	0.3048	12	1	0.333
914.4	91.44	0.9144	36	3	1

Length

1 kilometre = 1000 metres = 0.62137 miles

1 mile = 1609.34 metres = 1.60934 kilometres

square millimetre mm ²	square centimetre cm ²	square metre m ²	square inch in ²	square foot ft ²	square yard yd ²
1	0.01	10 ⁻⁶	1.55 x 10 ⁻²	1.076 x 10 ⁻⁵	1.196 x 10 ⁻⁸
100	1	10 ⁻⁴	0.55	1.076 x 10 ⁻²	1.196 x 10 ⁻⁴
10 ⁶	10 000	1	1550	10.764	1.196
645.16	6.4516	6.452 x 10 ⁻⁴	1	6.944 x 10 ⁻²	7.16 x 10 ⁻⁴
92 903	929.03	0.093	144	1	0.111
836 27	8361.27	0.836	1296	9	1

Area

cubic millimetre mm ³	cubic centimetre cm ³	cubic metre m ³	cubic inch in ³	cubic foot ft ³	cubic yard yd ³
1	0.001	10 ⁻⁹	6.1 x 10 ⁻³	3.531 x 10 ⁻³	1.308 x 10 ⁻⁹
1000	1	10 ⁻⁶	0.061	3.531 x 10 ⁻³	1.308 x 10 ⁻⁶
10 ⁹	10 ⁶	1	61 024	35.31	1.308
16 387	16.39	1.639 x 10 ⁻³	1	5.787 x 10 ⁻⁴	2.143 x 10 ⁻⁵
2.832 x 10 ⁷	2.832 x 10 ⁴	0.283	1728	1	0.0370
7.646 x 10 ⁸	7.646 x 10 ⁵	0.7646	46 656	27	1

Volume

cubic metre m ³	litre l	millilitre ml	U.K. gallon U.K. gal	U.S. gallon U.S. gal	cubic foot ft ³
1	1000	10 ⁶	220	264.2	35.3147
0.001	1	1000	0.22	0.2642	0.353
10 ⁻⁶	0.001	1	2.2 x 10 ⁻⁴	2.642 x 10 ⁻⁴	3.53 x 10 ⁻⁵
0.00455	4.546	4546	1	1.201	0.1605
0.00378	3.785	3785	0.8327	1	0.1337
0.0283	28.317	28 317	6.2288	7.4805	1

Liquid Measure

1 U.S. Barrel – 42 U.S. gallons (petroleum measure)

1 litre = 10⁶ mm³ = 10² cm³ or 1 cubic decimetre (1 dm³)

1 litre = 1.76 U.K. pints = 2.113 U.S. pints

U.K. gallon and U.K. pint also called Imperial gallon and Imperial pint



Conversion Equivalents

metre per second m/s	foot per second ft/s	metre per minute m/min	foot per minute ft/min	kilometre per hour km/h	mile per hour mile/h	Velocity
1	3.281	60	196.85	3.6	2.2369	
0.305	1	18.288	60	1.0973	0.6818	
0.017	0.055	1	3.281	0.06	0.0373	
0.005	0.017	0.305	1	0.0183	0.01136	
0.278	0.911	16.667	54.68	1	0.6214	
0.447	1.467	26.822	88	1.6093	1	

kilogram kg	pound lb	hundred-weight cwt	tonne t	U.K. ton	U.S. ton sh ton	Mass
1	2.205	0.0197	0.001	9.84×10^{-4}	0.0011	
0.454	1	0.0089	4.54×10^{-4}	4.46×10^{-4}	5.0×10^{-4}	
50.802	112	1	0.0508	0.05	0.056	
1000	2204.6	19.684	1	0.9842	1.1023	
1016	2240	20	1.0161	1	1.12	
907.2	2000	17.857	0.9072	0.8929	1	

kilogram per second kg/s	pounds per second lb/s	kilogram Per hour kg/h	pound per hour lb/h	U.K. ton/hour ton/h	Tonne/hour t/h	Mass Flow Rate
1	2.205	3600	7936.64	3.5431	3.6	
0.454	1	1633	3600	1.607	1.633	
2.78×10^{-4}	6.12×10^{-4}	1	2.205	9.84×10^{-4}	0.001	
1.26×10^{-4}	2.78×10^{-4}	0.454	1	4.46×10^{-4}	4.54×10^{-4}	
0.282	0.622	1016	2240	1	1.016	
0.278	0.612	1000	2204.6	0.9842	1	

litre per second l/s	litre per minute l/min	cubic metr per hour ft ³ /h	cubic foot per hour ft ³ /h	cubic foot per minute ft ³ /min	U.K. gallon per minute U.K. gal/min	U.S. gallon per minute US gal/min	U.S. barrel per day US barrel/d	Volumetric Rate of Flow
1	60	3.6	127.133	2.1189	13.2	15.85	543.439	
0.017	1	0.06	2.1189	0.0353	0.22	0.264	9.057	
0.278	16.667	1	35.3147	0.5886	3.66	4.403	150.955	
0.008	0.472	0.0283	1	0.0167	0.104	0.125	4.275	
0.472	28.317	1.6990	60	1	6.229	7.480	256.475	
0.076	4.546	0.2728	9.6326	0.1605	1	1.201	41.175	
0.063	3.785	0.2271	8.0209	0.1337	0.833	1	34.286	
0.002	0.110	0.0066	0.2339	0.0039	0.024	0.029	1	

newton N	kilonewton kN	kilogram force* kgf	pound force lbf	Force
1	0.001	0.102	0.225	
1000	1	101.97	224.81	
9.807	0.0098	1	2.205	
4.448	0.0044	0.454	1	

* The kilogram force is sometimes called the kilopond (kp)

newton / square metre N/m ²	millibar (102N/m ²) mbar	bar (102N/m ²) bar	kilogram force / square centimetre kgf/cm ²	pound force / square inch lbf/in ²	foot of water ft H ₂ O	metre of water m H ₂ O	millimetre of mercury mm Hg	inch of mercury in Hg	Pressure & Liquid Head
1	0.01	10^{-3}	1.02×10^{-3}	145×10^{-4}	3.3×10^{-4}	1.02×10^{-4}	0.0075	2.95×10^{-4}	
100	1	0.001	1.02×10^{-3}	0.0145	0.033	0.0102	0.75	0.029	
10^2	1000	1	1.02	14.5	33.455	10.2	750.1	29.53	
98 067	980.7	0.981	1	14.22	32.808	10.0	735.6	28.96	
6895	68.95	0.069	0.0703	1	2.307	0.703	51.71	2.036	
2989	29.89	0.03	0.0305	0.433	1	0.305	22.42	0.883	
9807	98.07	0.0098	0.1	1.42	3.28	1	73.55	2.896	
133.3	1.333	0.0013	0.0014	0.019	0.045	0.014	1	0.039	
3386	33.86	0.0338	0.0345	0.491	1.133	0.345	25.4	1	



Franklin Electric

The special name 'pascal' (symbol Pa) has been given to the unit N/m² (1Pa = 1 N/m²). 1 mm Hg is also known by the name 'torr'.

The international standard atmosphere (1 atm) = 101 325 pascals or 1.013 bar. This is equal to 1.033 23 kgf/cm² or 14.6959 lbf/in².

The conventional reference conditions known as 'standard temperature and pressure' (stp) are: at 0°C + 14 6959 lbf/in² at 0°C.

The standard reference conditions (st) for gas are 1.013 25 bar at 15°C and dry, as defined by the International Gas Union. These may also be referred to as Metric Standard Conditions (MSC).

joule	kilojoule	megajoule	foot pound force	British thermal unit	therm	kilowatt hour
J	kJ	MJ	ft lbf	B.t.u.		kW h
1	0.001	10 ⁻⁶	0.737	9.48 x 10 ⁻⁴	9.48 x 10 ⁻⁹	2.78 x 10 ⁻⁷
1000	1	0.001	737.56	0.9478	9.48 x 10 ⁻⁹	2.78 x 10 ⁻⁴
10 ⁴	1000	1	737 562	947.82	9.48 x 10 ⁻³	0.2778
1.356	1.36 x 10 ⁻³	1.36 x 10 ⁻⁶	1	1.28 x 10 ⁻³	1.28 x 10 ⁻³	3.77 x 10 ⁻⁷
1055.1	1.0551	1.05 x 10 ⁻³	778.17	1	10 ³	2.931 x 10 ⁻⁴
1.0551 x 10 ⁴	105 510	105.51	7.78 x 10 ⁷	100 000	1	29.307
3.6 x 10 ⁴	3600	3.6	2.65 x 10 ⁶	3412.1	0.03412	1

Energy,
Work,
Heat

Watt	kilogram force metre per second	metric horsepower	foot pound force per second	horsepower
W	kgf m/s		ft lbf/s	hp
1	0.102	0.00136	0.738	0.0013
9.806	1	0.0133	7.233	0.0131
735.5	75	1	542.476	0.9863
1.356	0.138	1.84 x 10 ⁻³	1	1.82 x 10 ⁻³
745.70	76.04	1.0139	550.0	1

Power

1 watt = 1 joule per sec = 1 newton metre per sec. The metric horsepower is called 'cheval vapeur' (ch) or (CV) in France. In Germany it is called the 'Pferdestärke' (PS).

Density g/cm³ = 1000 kg/m³ = 0.0361 lb/in³
 kg/m³ = 0.001 g/cm³ = 0.0624 lb/ft³

Specific Volume 1 cm³/g = 0.001 m³/kg = 27.68 in³/lb
 1 m³/kg = 1000 cm³/g = 16.0185 ft³/lb